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Missing in the Shark Bay area, *Grevillea speckiana* Olde, a new species and the northernmost member of the *Triloba* Group (Proteaceae: Grevilleoideae: Hakeinae)

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Abstract

G. speckiana Olde is described from a single collection gathered in 1953. Although the specimens bears flowers in early bud, fruits and foliage are sufficient to assign and describe the species. Unlike several other species in the *Triloba* Group awaiting description from single specimens that represent extinct species, there is some hope for its continued existence because of the botanically unexplored locality in which it was collected.

Introduction

Grevillea speckiana is described from a single fruiting specimen at PERTH and one duplicate at CANB. The collection gathered in 1953 was first seen by me in 1999. Several trips were subsequently conducted by me and others in the Shark Bay region, to which a search for this species was admittedly incidental and confined to major roads, but based on a study of all N.H. Speck's collections made around the collecting date. Speck gathered his specimen from a locality geographically disjunct from where any other member of the *Triloba* group has been collected, previously restricted in its northernmost distribution in the south-west of Western Australia to the Murchison River. An anticipated confirming re-collection was hoped for, but regrettably has not yet come to pass.

Makinson (2000: 434) first treated the specimen as a doubtful record but included it in *G. biternata* Meisn., It has been recognised by the Western Australian herbarium in *FloraBase* as *Grevillea* sp. Shark Bay (N.H. Speck 24/09/1953) and was included by Gibson (2016: 156–7) among a group of species that are potentially extinct. A freely accessible image of the PERTH specimen given by Gibson and a helpful analysis of Speck's itinerary, give some hope that this species will be re-discovered in the largely remote and unexplored Shark Bay area. The epithet was selected after consultation with the updated list of fossil *Grevillea* epithets (Olde 2017).

Although simple leaves predominate on specimens of this and other species yet to be described in the *Triloba* Group, they rarely occur exclusively. A low percentage of bi- or divaricately tripartite leaves may also be present on any selected specimen and it is entirely possible that simple leaves will not always predominate a single collection. This paper is the fifth in a series aimed at revising the *Triloba* Group (Olde 2020; Olde 2021a, 2021b; Olde & Marriott 2021).

Taxonomy

Grevillea speckiana Olde, *sp. nov*.

Type: Western Australia: Shark Bay [region], 24 Sep. 1953, *N.H. Speck s.n.* (holo: PERTH 01900609; iso: CANB 195204).

Morphologically similar to *Grevillea vestita* (Endl.) Meisn. but differing in its leaves mostly simple, linear, rarely once-divided with linear lobes. *Grevillea biternata* Meisn. differs in its rugose fruits.

Grevillea sp. Shark Bay (N.H. Speck 24/09/1953), Western Australian Herbarium, in *FloraBase*, https://florabase.dpaw.wa.gov.au [accessed 28 January 2016].

*Seedling*s not seen. *Mature plant* a *shrub* of unknown dimensions, shape and generative mode. *Branchlets* 0.8–2 mm thick, terete, not ribbed, grey-brown *in sicco*, pubescent-villous, the indumentum moderately dense, the hairs variable in length, spreading, straight or curved with white contents. *Adult leaves* usually simple, occasionally once-divided, bi-partite, very rarely divaricately tripartite; simple leaves 2–3 cm long, 1.2–1.3 mm wide, linear to narrowly elliptic, usually longitudinally incurved; divided leaves 2.5–3.2 cm long, 1.5–1.8 cm wide; leaves not crowded, ascending to patent, subsessile; *new growth* white-villous; *basal internode* (divided leaves) monomorphic, 13–15 mm long, 1.3–1.5 mm wide, narrowly cuneate, leaf base straight (simple leaves), elliptic in cross-section, villous, the adaxial surface flat to convex; *primary lobes* 2 or 3, 0.8–1 cm long, 1–1.3 mm wide, spreading, linear to narrowly elliptic, straight or recurved longitudinally, often slightly twisted, equal or slightly unequal, secondary division absent; *apices of leaves and lobes* acute, spinescent; *spine* 1.5–3 mm long, yellow-brown to dark brown, stiff, pungent; *margins* angularly refracted about the intramarginal vein, enclosing most but not all of the under-surface; *adaxial surface* flat to convex, moderately to densely tomentose-villous with a mixed indumentum of spreading hairs with arms of varying and sometimes unequal lengths filled with white contents, the midvein evident to impressed, straight, intramarginal and edge veins also evident, lateral veins not evident; *abaxial surface* bisulcate, the lamina enclosed, of divided leaves the lamina exposed below sinuses, sparsely villous, the midvein prominent, level with the revolute margin; *sulcae* 0.05–0.1 mm wide, villous; *texture* coriaceous; *petioles* 0.1–0.7 mm long, 1–1.2 mm wide, normal, obscure, 3-merous, spreading slightly at the point of attachment, the central segment not developed down the branch, the lateral segments spreading, the adaxial surface concave, glabrous or sometimes with scattered hairs; the abaxial surface convex, sparsely villous. *Conflorescences* axillary, occasionally subterminal on short axillary branches, simple or rarely, 2-branched at the base, enclosed within the foliage, extending well down the branch; *unit conflorescences* c. 1 cm diam., shape indeterminate ?globose, moderately dense, petaly uncertain, probably acropetal; *buds* 2 mm long, 1.8 mm wide, ovoid, sessile to very shortly pedunculate, enclosed by bracts or bractiform leaves, swelling and proceeding to immediate development; *peduncles* 0–2 mm long, villous; *floral rachises* 5–11 mm long, tapering distally, white-tomentose to-villous, hairs sparse at the base, twisted, not extending beyond the outline of prominent floral nodes, the nodes condensed towards apex; *involucral bracts* 2–2.5 mm long, 0.8 mm wide, ovate-acuminate, tomentose, the hairs moderately dense, more so at the apex than the base; *common bracts* 0.7–1.5 mm long, 0.5–1 mm wide, ovate, sharply to smoothly recurved from *c*. halfway, flat (not cymbiform), sparsely villous abaxially, persistent to fruiting. *Flower colour green* in bud. *Flowers* actinomorphic, glabrous externally, not discolorous *in sicco*; *pedicels* 7–12 mm long, ascending, the apex abruptly expanded, an aberrant pedicel conjoined above its base with a fruit-bearing pedicel; *torus* 0.6–0.7 mm across, slightly oblique; *nectary* evident, U-shaped, rising 0.1 mm above the torus, margin entire; *pistil* not seen (see fructual style below); *perianth* 4.2 mm long, the tube 3 mm long, 0.7 mm wide, subcylindrical to narrowly obovoid; *limb* 1.2 mm long, 1.5 mm wide, spheroidal; *tepal-limbs* 0.75 mm wide, keeled*; pollen*: yellow, triporate; abnormalities not observed. *Fruits* follicular, 7.5–9.5 mm long, 4.5 mm wide, transverse on incurved pedicel, with attachment subposterior 2–3 mm from base, oblong-ellipsoidal; fructual style lateral with pollen-presenter conical, straight-sided, 0.6 mm long, 0.35 mm wide at base, the base slightly to markedly oblique, abruptly divergent from the style-end, scarcely to very narrowly rimmed; stylar dilation ovoid, 0.8–1 mm wide contracting to 0.5 mm immediately below the pollen-presenter; stigma 0.1 mm wide, not oblique; pericarp *c*. 0.4 mm thick; exocarp smooth to slightly colliculose; *mesocarp* crustaceous; *endocarp* smooth, membranaceous. *Seeds* (immature) (CANB 195204 in pkt) 3 mm long, 1 mm wide at apex, 0.6 mm wide at base, biconvex, obovoid, winged at apex with an excurrent apical wing 0.5 mm long, smooth on the outer face, flanged on the inner face with an obscure submarginal, waxy collar. (Figures 1, 2)

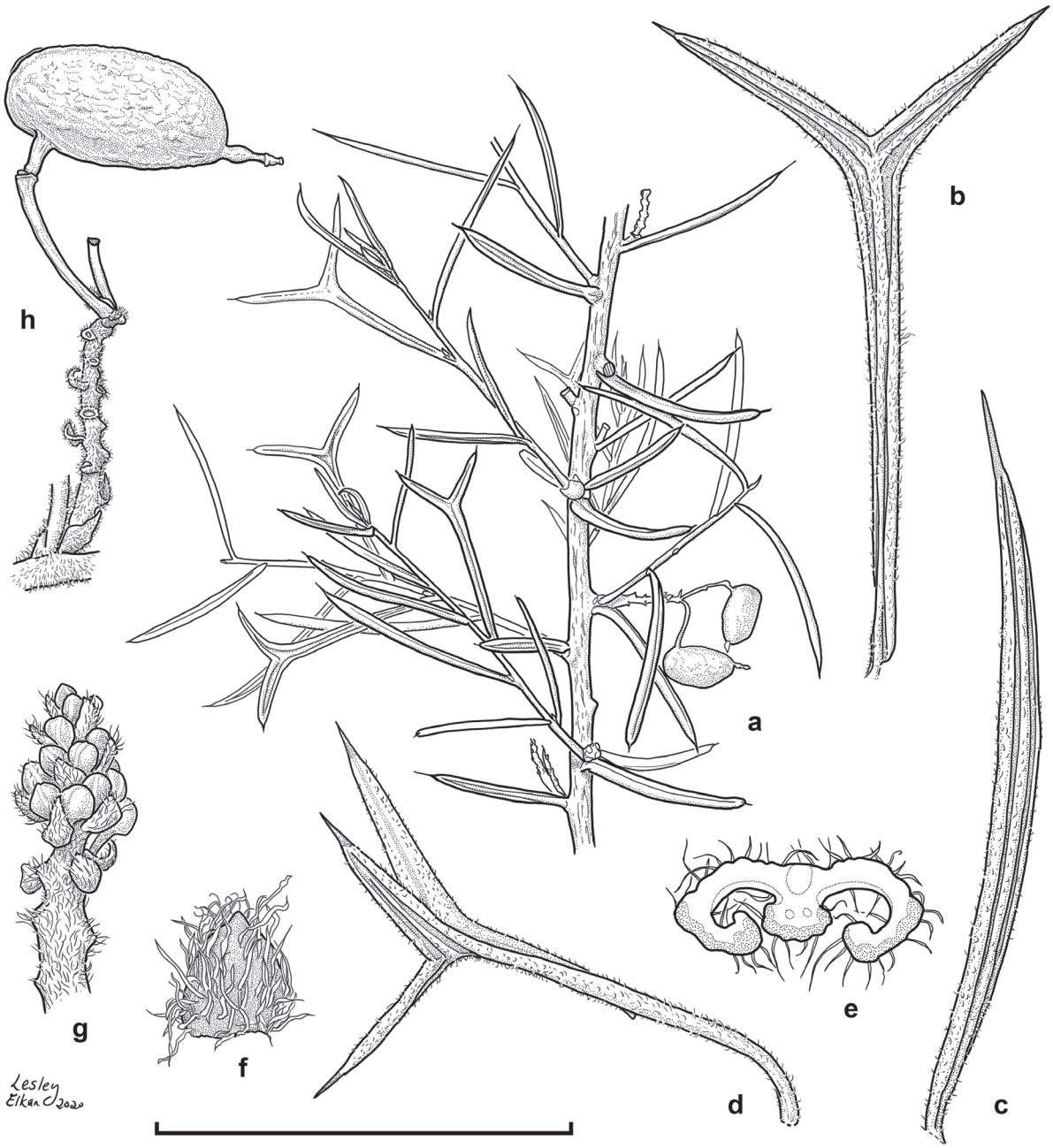

Fig. 1. *Grevillea speckiana*. a. Fruiting branch. b. Leaf with divided apex. c. Leaf with simple blade. d. Leaf with trifurcate apex (lateral view). e. Transverse section of leaf. f. Bract. g. conflorescence in bud. h. Persistent follicle. Scale bar: a = 50 mm; b–d, h = 15 mm; e = 2 mm; f = 2.5 mm; g = 7.5 mm. Illustration by Lesley Elkan from *H.N. Speck s.n.*, 24/09/1953 (holotype; PERTH 01900609).

Diagnostic characters: Branchlets pubescent-villous, the indumentum moderately dense. Leaves mostly simple, a few once-divided bi- to divaricately tripartite; simple leaves ≤1.3 mm wide, linear to very narrowly elliptic, usually longitudinally curved, divided leaves occasional, forked; floral rachises 5–11 mm long, white-tomentose-villous; common bracts sparsely villous on the outer surface, persistent; pedicels 7–12 mm long; nectary prominent; fructual style glabrous, dilated up to 1 mm wide; pollen-presenter conical; perianth outer surface glabrous, actinomorphic; fruits with smooth exocarp.

Distribution: Western Australia where known only from the Shark Bay area. It occurs apparently in the Shark Bay LGA, in the Wooramel Subregion of the Carnarvon IBRA Region. Gibson (2016: 156) suggests a locality between Hamelin Pool and Carnarvon as most likely.

Fig. 2. Isotype of *Grevillea speckiana* (CANB 195204). Photo by P. Olde.

Doubt has been expressed about the accuracy of Speck's location and suggestions have been made that the collection is more likely to have been made near the old coastal highway, although this is speculative. Extensive collections in the tree heath and a flora survey of Hamelin Station for Bush Heritage failed to record this species. Two possibilities can be entertained.

1. If *G. speckiana* is a rare seed-obligate species, then as with some other declared rare flora, an intense fire in the region may stimulate growth from the stored seed bank.
2. The species may have been collected on the Victoria Plateau, not the Peron region of Shark Bay, where the red sands of the tree heath occurs. This area contains the Eurady and Nerren Nerren Dune Systems that contain many unusual and local endemics. He was in and around this area (Junga Tank and 46 mile tank) on 22 and 25 of September 1953 and also collected *Banksia lindleyana* labelled as south of Hamelin and *Banksia ashbyi* previously (on 9-1945) also labelled as south of Hamelin Pool. None of these collections are site specific but relate to the area around a feature. All can be located on the main highway. The WA Wildflower Society surveyed Eurady Station for Bush Heritage and did not locate any *Grevillea* matching this species. However, there are large areas of sandplain country to the north located on Unallocated Crown Land, Nerren-Nerren and Coburn Stations, all of which reach the main highway, and which are relatively unexplored.

Phenology: Flowering probably commences in autumn and is finished by late winter; fruits apparently form abundantly in early spring, but may be subject to periodic rainfall.

Habitat and ecology: Unknown. It probably occurs in Eremaean Proteaceae woodland. There is a flower of an unidentified proteaceous plant (possibly *Banksia*) entangled in the foliage of the PERTH specimen which, when identified, may give a clue to the plant association of this species. Speck did not collect a *Banksia* on this day and the flower may form a natural co-occurrence with *Grevillea speckiana*.

Specimens seen: Only known from the type collection.

Conservation status: A conservation code for Western Australian Flora of Priority One has been assigned to this species by the Western Australian Herbarium (1998–).

Etymology: The specific epithet honours Nathaniel Henry Speck (1906–1970), science teacher and later plant ecologist and plant biogeographer whose field work and plant collections resulted in the discovery of many new species.

Discussion: *Grevillea speckiana* appears to share some significant morphological features with *G. vestita* including foliar indumentum, persistent common bracts, a conical pollen-presenter, and smooth to very faintly colliculose follicles bearing similar attached styles.

It differs in its mostly simple, linear leaves of which there are none in known populations of *G. vestita*. Morphological similarities do not imply that taxa should be treated as the same species or even subordinated as subspecies, at least until some scientific proof and phylogenetic analysis is put forward as evidence.

A separate undescribed species, probably related to *G. levis* Olde & Marriott, has been collected in the Kalbarri–Murchison River area. It has divaricately tripartite to biternate leaves, occasional simple leaves, smooth fruits and hairy branchlets. This species is currently under study, interrupted by access to specimens, and will be the subject of a future paper. It differs from *G. speckiana* in its appressed foliar indumentum, its leaves and lobes narrower and some with secondary division, its common bracts early caducous. The undescribed taxon differs from *G. levis* in its hairy branchlets, though a full suite of differentiating characters awaits the study of the morphologically diverse *G. levis* across its entire distribution. *G. biternata* differs in its rugose fruits and is also the subject of ongoing revision. *G. triloba* occurs between Northampton and Geraldton. It has rugose fruits and its leaves also have prominent secondary venation on the leaf upper surface, especially noticeable in dried specimens. In some forms simple leaves predominate, a likely source of some confusion if fruits are lacking.

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